

*REMARKS*

Claims 18-48 remain pending.

In the Office Action, the Examiner objected to the drawings; objected to the disclosure; rejected claims 18 and 22 under 35 U.S.C. § 112, ¶2; rejected claims 15, 18, and 21 under 35 U.S.C. § 112, ¶2; rejected claim 18 under 35 U.S.C. § 102(b) as being anticipated by Gudmundsen (US Patent No. 3,855,583); rejected claims 19 and 20 under 35 U.S.C. § 103(a) as being unpatentable over Gudmundsen in view of Erikson (US Patent No. 3,519,820); rejected claim 21 under 35 U.S.C. § 103(a) as being unpatentable over Gudmundsen in view of Skelly (US Patent No. 3,573,753); rejected claims 22, 24-28, 30-33, and 43-48 under 35 U.S.C. § 103(a) as being unpatentable over Chen et al. (US Patent No. 5,118,192) in view of Gudmundsen and Salgo (US Patent No. 3,936,690); rejected claims 23 and 29 under 35 U.S.C. § 103(a) as being unpatentable over Chen et al. in view of Gudmundsen and Salgo and further in view of Skelly; rejected claims 34, 35, and 39 under 35 U.S.C. § 102(b) as being anticipated by Yasuda et al. (US Patent No. 4,207,617); rejected claims 36-38 and 40-42 under 35 U.S.C. § 103(a) as being unpatentable over Yasuda et al. in view of Magnitski et al. (US Patent No. 6,819,649); provisionally rejected claims 18, 21-31, and 43-46 under nonstatutory obviousness-type double patenting over claims 19-41 of US Application No. 11/193,213; provisionally rejected claims 19 and 20 under nonstatutory obviousness-type double patenting over claims 19-41 of US Application No. 11/193,213 in view of Erikson; provisionally rejected claims 22-31 and 43-46 under nonstatutory obviousness-type double patenting over claims 25-41 of US Application No. 10/942,286; rejected claims 18-21 under nonstatutory obviousness-type double patenting over claims 13-15 of US Patent No. 6,642,161; rejected claims 18 and 21 under nonstatutory obviousness-type double patenting over claims 5 and 6 of US Patent No. 6,625,052; and rejected claims 19 and 20 under nonstatutory obviousness-type double patenting over claims 5 and 6 of US Patent No. 6,625,052 in view of Erikson.

**Drawing objections:**

Page 2 of the Office Action alleges that “amplifier” in Fig. 1 and “interlayer” in Fig. 2 are not mentioned in the specification. A quick word search of the published application, US 2005/0162888 A1, finds three occurrences of “amplifier” in the claims, which are, of course, part of the disclosure (see M.P.E.P. § 2163.06(III)). A similarly quick word search of the published application finds “interlayer” in both claim 26 and paragraph 0022. The Examiner is respectfully requested to perform such a word search before objecting to the drawings again. The first drawing objection should be withdrawn.

Page 2 also alleges with regard to claims 28 and 44 that the recited transparent layer is not shown. As is apparent from the first sentence of paragraph 0028 (and from paragraph 0024 which was mentioned on page 11 of the previous response), either element 112 or element 214 or both show the claimed transparent layer. The Examiner is respectfully requested to perform a word search and/or read and respond to Applicants’ explanation before objecting to the drawings again. This second drawing objection also should be withdrawn.

**Specification objections:**

Page 3 of the Office Action alleges “the following informalities” and then fails to list a single specific informality in the specification. Rather, the Examiner makes several “it is not clearly understood” statements. Given the issuance of the grandparent and parent applications as US Patent Nos. 6,625,052 and 6,643,161, Applicants respectfully submit that any problem is with the Examiner’s comprehension, and not with the specification itself. Because no informalities have been identified with the specification, Applicants respectfully decline to change it from that in the above-two issued patents. The objections to the specification should be withdrawn.

**§ 112, ¶2 rejection:**

“In reviewing a claim for compliance with 35 U.S.C. 112, second paragraph, the examiner must consider the claim as a whole to determine whether the claim apprises one of ordinary skill in the art of its scope” (M.P.E.P. § 2173.02). The *language* of claims 18 and 22 is

sufficiently clear and precise, and one of ordinary skill would certainly understand the scope of the claimed electron beam source. But the clarity and precision of the language used in claims 18 and 22 are not what the Examiner is really complaining about. Rather, the Examiner appears to be requesting additional claim elements be added (“since there is no recited circuit/element/means. . .”). To that Applicants reply that “A fundamental principle contained in 35 U.S.C. 112, second paragraph is that applicants are their own lexicographers. They can define in the claims what they regard as their invention essentially in whatever terms they choose” (M.P.E.P. § 2173.01). Applicants have clearly and precisely defined their invention in claims 18 and 22 as they choose, and it is improper for the Examiner to try to re-draft the claims. The § 112, ¶2 rejection of claims 18 and 22 should be withdrawn for these reasons.

**Claims 18-21:**

Applicants respectfully traverse the 35 U.S.C. § 102(b) rejection of claim 18.

Claim 18 requires an apparatus including, *inter alia*, “an electron beam source, to generate an electron beam.” Gudmundsen fails to disclose all limitations of claim 18.

Page 5 of the Office Action alleges that photon beam 78 of Gudmundsen corresponds to the claimed electron beam source. Photon beam 78 is a beam of light and cannot be read on by any physical component. The claimed electron beam source also does not reasonably read on optical beam supply means 74 in Gudmundsen, because the claimed source “generate[s] an electron beam” and means 74 does not. Photons are not the same things as the claimed electrons. The § 102(b) rejection of claim 18 is improper, and it should be withdrawn.

Regarding the 35 U.S.C. § 103(a) rejections of claims 19-21, the addition of Erikson and Skelly fail to cure the deficiencies of Gudmundsen explained above. The Office Action fails to allege that Erikson and/or Skelly teaches or suggests the claimed electron beam source, and also fails to provide any motivation or suggestion to combine such an element with Gudmundsen. Thus, the § 103(a) rejections of claims 19-21 are improper, and they should be withdrawn.

**Claims 22-26, 27-33, and 43-48:**

Applicants respectfully traverse the 35 U.S.C. § 103(a) rejection of claims 22 and 24-26.

A *prima facie* case of obviousness has not been established, because the references as combined fail to teach or suggest all limitations of the claims. Claim 22 requires an apparatus including, *inter alia*, “an electron beam source, to generate an electron beam incident upon said volume of material to create a first current to be measured between said first conductive material and said reference conductor and a second current to be measured between said P-N junction and said reference conductor.” Chen et al., Gudmundsen, and Salgo as combined fail to teach or suggest all limitations of claim 22.

As explained above Gudmundsen fails to teach or suggest the claimed electron beam source. Chen et al. also fails to teach or suggest the claimed electron beam source, because both sources 20 are disclosed to be light sources, for example laser diodes (col. 4, lines 30-38). While Salgo arguably does disclose an electron beam source, it fails to teach or suggest, either alone or in combination with the other two, optical, references “an electron beam incident upon said volume of material to create a first current to be measured between said first conductive material and said reference conductor and a second current to be measured between said P-N junction and said reference conductor,” as required by claim 22. These limitations may not properly be ignored.

Thus, a *prima facie* case of obviousness has not been established for claim 22 at least because the references as combined fail to teach or suggest all limitations of claim 22. Claims 24-26 are allowable at least by virtue of their dependence on claim 22. The § 103(a) rejection of claims 22 and 24-26 is improper, and it should be withdrawn.

Applicants respectfully traverse the 35 U.S.C. § 103(a) rejection of claims 27, 28, 30-33, and 43-48.

A *prima facie* case of obviousness has not been established, because the references as combined fail to teach or suggest all limitations of the claims. Claim 27 requires an apparatus including, *inter alia*, “an electron beam source, to generate an electron beam incident upon said first side of said volume of material to cause an emission of photons from said P-N junction; and

a photo-detector responsive to the emission of photons, wherein an output of said photo-detector is to be associated with the bit of data.” Claim 43 includes similar limitations. Chen et al., Gudmundsen, and Salgo as combined fail to teach or suggest all limitations of claims 27 and 43.

As explained above Gudmundsen and Chen et al. disclose both optical sources and detectors. Neither Gudmundsen and Chen et al. teaches or suggests the claimed electron beam source and photo-detector set forth in claims 27 and 43. Indeed, Gudmundsen and Chen et al. teach away from the proposed combination due to their optical-only (e.g., lacking an electron beam source) implementations.

Salgo arguably discloses an electron beam source, and page 8 of the Office Action points to claim 31 of Salgo as allegedly teaching or suggesting the claimed photo-detector. Applicants claim 27, however, requires that the “electron beam incident upon said first side of said volume of material [] cause[s] an emission of photons from said P-N junction.” Applicants’ claim 43 contains a similar requirement. Claim 31 of Salgo clearly states that the scintillation crystals *within the detection means* output the photons, and not any part of the memory device (much less from the “P-N junction” required by claim 27 or the “from said volume of material” required by claim 43 ).

Thus, a *prima facie* case of obviousness has not been established for claims 27 and 43 at least because no reasonable combination of the references teaches or suggests all limitations of claims 27 and 43. Claims 28, 30-33, and 44-48 are allowable at least by virtue of their dependence on claims 27 and 43. The § 103(a) rejection of claims 27, 28, 30-33, and 43-48 is improper, and it should be withdrawn.

Regarding the 35 U.S.C. § 103(a) rejections of claims 23 and 29, the addition of Skelly fails to cure the deficiencies explained above with regard to claims 22 and 27. The Office Action fails to allege that Skelly teaches or suggests the claimed electron beam source (and/or photo-detector), and also fails to provide any motivation or suggestion to combine such element(s) with the other three references. Thus, the § 103(a) rejection of claims 23 and 29 is improper, and it should be withdrawn.

**Claims 34-38 and 39-42:**

Applicants respectfully traverse the 35 U.S.C. § 102(b) rejection of claims 34-38 and 39-42.

Claim 34 requires a method including, *inter alia*, “exposing a volume of material, having a first electroluminescence intensity (EL), to an electron beam; and changing the first EL intensity to a second EL intensity during said exposing, wherein the bit of data is stored.” Claim 39 requires an apparatus including, *inter alia*, “a second conductive material disposed on said second side, wherein an electron beam to be irradiated on said volume of material to change a first electroluminescence intensity (EL) of said volume of material to a second EL wherein the bit of data is stored.” Yasuda et al. fails to disclose all limitations of claims 34 and 39.

In particular, page 10 of the Office Action fails to read *either of* the claimed first electroluminescence intensity (EL) and second EL intensity on any portion of Yasuda et al. This is a failure of evidence, and a *prima facie* case of anticipation has not been established. The Examiner is respectfully requested to be more thorough and complete with regard to claims 34-38 and 39-42 in any future actions.

The § 102(b) rejection of claims 34 and 39 is improper, and it should be withdrawn. Claim 53 is allowable by virtue of its dependency.

Regarding the 35 U.S.C. § 103(a) rejections of claims 36-38 and 40-42, the addition of Magnitski et al. fails to cure the evidentiary deficiencies of Yasuda et al. explained above. The Office Action fails to allege that Magnitski et al. teaches or suggests the claimed first electroluminescence intensity (EL) and second EL intensity. Thus, the § 103(a) rejection of claims 36-38 and 40-42 is improper, and it should be withdrawn.

**Double patenting rejections:**

Applicants have no objection, in principle, to terminal disclaimers over the parent and grandparent patents. The application, however, has been somewhat arbitrarily and capriciously rejected the proverbial “nine ways from Sunday,” rendering the issue of such terminal disclaimers premature at best.

Applicants do respectfully note that the “rejections” spanning pages 12-15 of the Office Action fail to meaningfully compare claims between the present application and the myriad of other applications and patents as required (see M.P.E.P. §804(II-III)). The claims in the pending application are not nearly so close in subject matter as the shorthand treatment on pages 12-15 would suggest. The double patenting rejections are legally deficient, and should be modified, if not withdrawn.

Reconsideration and allowance of all pending claims 18-48 are respectfully requested.

In the event that any outstanding matters remain in this application, Applicants request that the Examiner contact Alan Pedersen-Giles, attorney for Applicants, at the number below to discuss such matters.

To the extent necessary, a petition for an extension of time under 37 C.F.R. § 1.136 is hereby made. Please charge any shortage in fees due in connection with the filing of this paper, including extension of time fees, to Deposit Account No. 50-0221 and please credit any excess fees to such deposit account.

Respectfully submitted,

Dated: April 27, 2007

/Alan Pedersen-Giles/

Alan Pedersen-Giles

Registration No. 39,996

c/o Intel Corporation  
LF2  
4040 Lafayette Center Drive  
Chantilly, VA 20151  
(703) 633-1061